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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/429,026	10/29/1999	LUC DARTOIS	Q56457	5442

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EXAMINER

GHULAMALI, QUTBUDDIN

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 04/10/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/429,026

Applicant(s)

DARTOIS, LUC

Examiner

Qutub Ghulamali

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 January 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 27 January 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other:

## DETAILED ACTION

### Acknowledgment

1. This office is responsive to the Amendment filed on 01/27/2003
2. The indicated allowability of subject matter in the last Office Action mailed 8/26/02 of claims 1-12 is withdrawn in view of the newly discovered reference(s) to Briffa (US Patent 6,075,411), Chiesa (US Patent 5,524,286), Midya (US Patent 6,240,278), Ostberg (US Patent 6,542,562), and Dent et al (US Patent 5,262,734). The delay in the discovery of the references is regretted. Rejections based on the newly cited reference(s) follow:

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4, 5, 7, 9, 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Briffa et al (US Patent 6,075,411). As shown in Figure 3, Briffa et al teaches a method for the linearization of a wide frequency band amplifier comprising a splitter (divider) (34) splitting the received RF multitone input signal into two equal groups, detecting and measuring (adjust) the envelopes of the input RF signal, apply predistortion (37) signal to input signal RFI from (34) having values depending on the frequency group (col. 2, lines 60-67, col. 3, lines 1-5, col. 5, lines 60-67 and col. 6, lines 1-20), and accuracy as determined by the predistortion based on the

Art Unit: 2631

received RF signal (col. 2, lines 45-48), and method and apparatus applied to wideband linearization in power amplifier (col. 1, lines 5-22) in transmitter and receiver.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 3, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Briffa et al (US Patent 6,075,411) in view of Midya et al (US Patent 6,240,278) <sup>?</sup> or Chiesa et al (US Patent 5,524,286). Briffa et al teaches a method for the linearization of a wide frequency band amplifier comprising a splitter (divider) (34) splitting the received RF multitone input signal into two equal groups, detecting and measuring (adjust) the envelopes of the input RF signal, apply predistortion (37) signal to input signal RFI from (34) having values depending on the frequency group (col. 2, lines 60-67, col. 3, lines 1-5, col. 5, lines 60-67 and col. 6, lines 1-20). Briffa et al fails to teach predistortion lookup table containing correction values for amplitude and phase of a predistortion. Midya et al teaches (fig. 3) a lookup table, the RF signal at the input containing amplitude and phase feedback loops for error correction (col. 1, lines 35-54), and a polynomial distortion scheme to linearize power amplifier in which the sum of linear and nonlinear output may contain amplitude and phase variations but occur only at frequencies identical to those of the input (col. 3, lines 8-12), and with reference to Fig. 2 in Chiesa (col. 3, lines 52-54 and col. 4, lines 6-10, lines 17-20, lines 28-34). Therefore, it would have been obvious to one of ordinary

Art Unit: 2631

skill in the art at the time the invention was made to modify the method by employing the lookup table for tuning the polynomial coefficients in accordance with minimizing the scalar cost function to provide a linear amplified RF signal.

7. Claims 6, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Briffa et al (US Patent 6,075,411) in view of Midya et al (US Patent 6,240,278) or Chiesa et al (US Patent 5,524,286) as applied to claims above, and further in view of Ostberg et al (US Patent No. 6,542,562).

As discussed in the above claims, Briffa et al and Midya et al or Chiesa et al teach every aspect of the claimed invention, but do not teach the signals represented by their rectangular coordinates converted to polar coordinates with phase and amplitude determine predistortion values and means for linear combination. Ostberg (col. 2, lines 60-65) teaches a coherent receiver in which the amplitude and phase of corrupted (distorted) channel for each symbol is determined in a CDMA environment with received signals are transmitted as CDMA signals. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Briffa et al and Midya et al or Chiesa et al to include steps to allow signals represented by their rectangular coordinates converted to polar coordinates with phase and amplitude determine predistortion values and means for linear combination so as to perform channel estimation with lower computational intensity as taught by Ostberg (col. 3 lines, 45-48, lines 63-66).

Art Unit: 2631

*Conclusion*


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (703) 305-7868.

The examiner can normally be reached during normal business days Monday-Friday from 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 703 305-4378. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-3988 for regular communications and 703 305-3988 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-4750.

QG.  
April 7, 2003

  
DON N. VO  
PRIMARY EXAMINER